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(54) Jet looms

(57) A jet loom picking nozzle has a main jet 7 controlled by a needle valve 12 and supplementary jets 5, each supplying its own weft 11, the main and supplementary jets 7,5 each leading to a common exit 15.

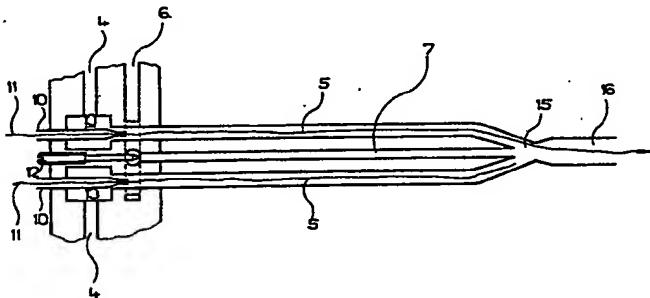


FIG. 2

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The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy.

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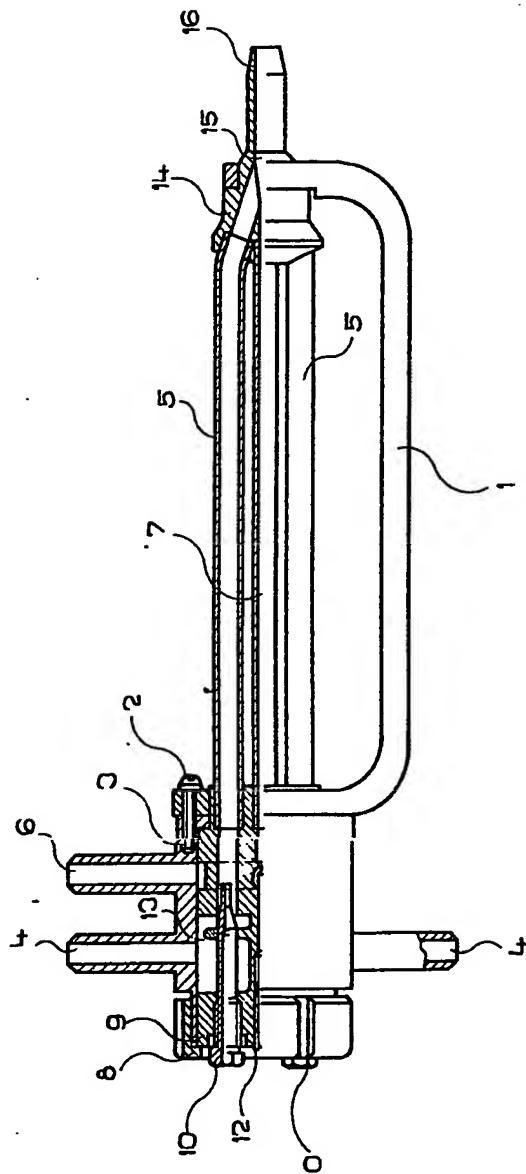


FIG. 1

$$2 \mid 2$$

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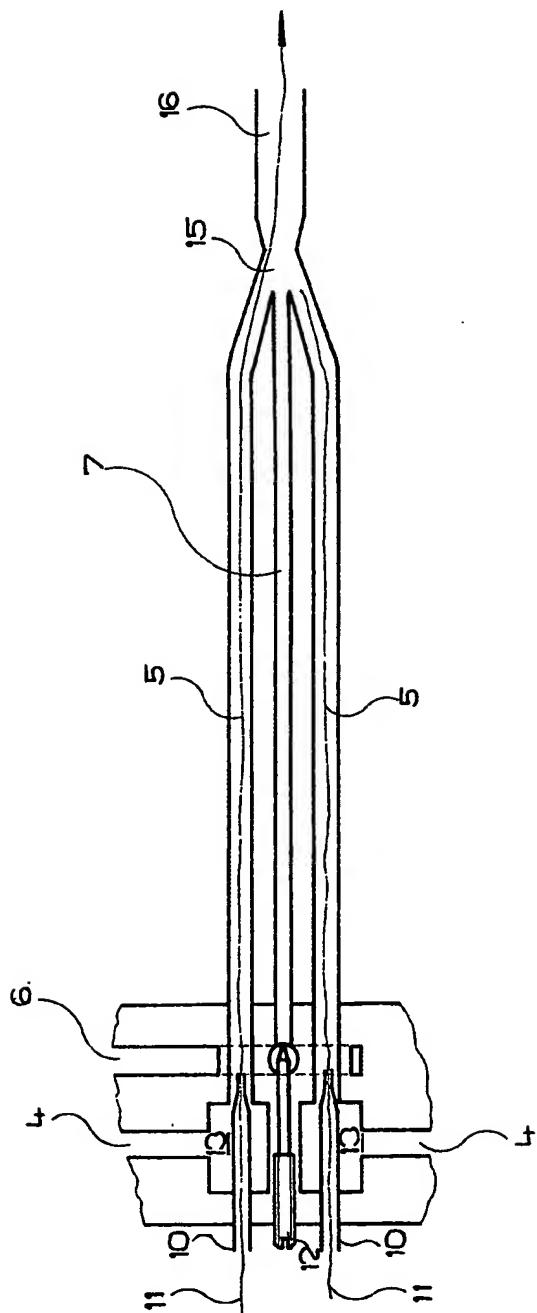


FIG. 2

## SPECIFICATION

## Weft inserting device for jet weaving machines

5 The present invention relates to a weft inserting device for jet weaving machines, said device being arranged either between the measuring device and the entry side of the shed on the machine frame, or on the beat-up mechanism thereof.

10 A device is known, in which at least two weft inserting jets are coupled and of which the mixing tubes at the exit sides of the weft are connected in such manner, that they form one central exit part with a single exit opening, which is continued by a 15 directing part, the latter being substantially formed by a pipe, of which one end is connected to the exit opening of the central exit part. The directing part has its longitudinal axis arranged usually parallel to the longitudinal axis of the beat-up reed.

20 This device unites thus a plurality of independently operating weft inserting jets into one assembly, in which the separate weft threads have a common exit opening. Furthermore, a device for inserting weft threads upon pick change in pneumatic weaving 25 machines is known, in which the ejector body is mounted inside the jet housing in such manner, that the outer surface of the wall of the ejector mixing chamber and the front part of the jet housing hollow constitute a nozzle with an annular cross section. To 30 the mixing chamber, at least two guiding channels for guiding weft threads without supply of pressure fluid are connected. This device has no mixing pipe, in which the weft is mixed with the inserting fluid. Consequently, as the weft comes into contact with 35 the inserting fluid only upon its exit from the nozzle, outside the device, it is not appropriately at rest. Thus, curling of the weft together with forming loops during insertion and consequent short picks can take place. From that view, the device is of low operative 40 reliability, though considerably intricate in its design.

A weft inserting device for a jet weaving machine according to the invention comprises at least one pair of coupled jets provided with pressure fluid 45 supplies, the inlet end of each jet being provided with a hollow inserting needle opening into a mixing pipe, each of which pipes are connected together at a central exit part having a single exit opening which is continued by a directing part wherein at least one 50 supplementary pressure fluid supply conduit opens in a direction towards and vents through the directing part.

The advantage of the device according to the 55 present invention consists in stabilizing the velocity field of both the pressure fluid and the weft along a sufficient length in the device and in the variability at weft insertion by adjusting the quantity of weft inserting fluid in the mixing pipe and the further supply. Moreover, the advantage consists also in the 60 increased output of the device from the viewpoint of length of the weft to be inserted, as well as the quality of insertion.

An embodiment of the invention will now be 65 described by way of example with reference to the accompanying drawings in which:-

*Figure 1 is a side view in partial cross section of a weft inserting device according to the invention, and Figure 2 is a diagrammatic view of the device of Figure 1.*

70 The device is mounted on a U-shaped holder 1, in the left part of which is fastened, by means of screws 2, housing 3 with pressure fluid supplies 4 for the mixing pipes 5 and a supplementary pressure fluid supply 6 for channel 7. A body 9, inside which is 75 adjustably fixed for each mixing pipe 5 one hollow inserting needle 10 for weft 11, is fixed inside the housing 3 by means of a cap nut 8. Between the inserting needles 10, a control element 12 is fastened in body 9, said element being a throttling screw 12 of 80 the supplementary pressure fluid supply 6 for channel 7. At the points of supplies 4, by-passing chambers 13 are made in body 9 around the inserting needles 10, needles opening into the mixing pipes 5, which are introduced into sleeve 14, 85 which is fixed at the right side of holder 1. Between the mixing pipes 5 in sleeve 14, the supplementary pressure fluid supply 6 is introduced by channel 7. The mixing pipes 5 are connected in sleeve 14 in such manner, that the central outlet part 15 has one 90 outlet opening, which is continued by directing part 16. The supplementary pressure fluid supply 6 thus opens through the channel in sleeve 14 in the central outlet part 15 between the outlets of mixing pipes 5. During weaving, the pressure fluid is supplied into 95 one of the supplies 4 and, upon releasing weft 11 by a not represented mechanism, weft 11 is entrained through mixing pipe 5 into the central outlet part 15 and directing part 16, and inserted therefrom into the not represented shed. For the purpose of amplifying 100 the velocity field at the outlet from the device, the pressure fluid is introduced into the supplementary supply 6, and therefrom through channel 7 into the central outlet part 15 and the directing part 16. This directed pressure fluid flow forms in that case the 105 main component of the velocity field for inserting the weft 11 into the not represented shed. The advantage of that device consists in that the inserting fluid, which is distributed into two components which are adjustable by throttling screw 12 and 110 adjustable inserting needles 10, acts upon weft 11 along a considerable length thereof. According to the type of weft and the method of weaving, either one or the other component becomes prevailing or, both are equivalent.

115 CLAIMS

1. A weft inserting device for a jet weaving machine comprising at least one pair of coupled jets provided with pressure fluid supplies, the inlet end of each jet being provided with a hollow inserting needle opening into a mixing pipe, each of which pipes are connected together at a central exit part having a single exit opening which is continued by a directing part wherein at least one supplementary pressure fluid supply conduit opens in a direction towards and vents through the directing part.
2. A device as claimed in claim 1 wherein the supplementary pressure fluid supply conduit is provided with a control member so as to control the

flow of the fluid through the conduit.

3. A device as claimed in claims 1 and 2, wherein the supplementary pressure fluid supply conduit opens into the central outlet part, between the

5 mixing pipes.

4. A weft inserting device for a jet weaving machine substantially as described with reference to the accompanying drawings.

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